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14. ABSTRACT
The Marine Corps warfighting philosophy of maneuver warfare seeks to shatter the enemy's cohesion through a series of rapid, violent, and unexpected actions to create a turbulent and deteriorating situation with which he cannot cope. The Marine Corps conducts Information Operations (IO) as the integration, coordination, and synchronization of all actions taken in the Information Environment (IE) to affect a target's behavior in order to create an operational advantage for the commander. As such, the Marine Air Ground Task Force (MAGTF) executes IO as an inherent element of all operations to enable and enhance the overall ability to conduct successful military actions.

Information Operations is a natural extension and evolution of the Marine Corps' combined arms mind-set and maneuverist tradition of taking the initiative in both the physical and cognitive dimensions. The Marine Corps recognizes the potential of IO as a critical combat multiplier through the incorporation of IO into an expanded operational planning mindset which supports both the Marine Corps' operational requirements as well as the joint force commander's needs. IO, whether applied in shaping the operational environment to deter conflict or in enabling decisive maneuver, must be recognized as an essential enabling activity that facilitates development of an operational advantage for the commander.

The Marine Corps will continue to build upon its expeditionary heritage and combined arms philosophy. Used as a natural extension of combined arms, IO will create critical opportunities which will allow future Marine Forces to project combat power more advantageously in support of MAGTF commander, JFC, and GCC objectives. Most importantly, IO will serve as a key complement to the traditional capabilities of the MAGTF, thereby enabling the Marine Corps to continue providing the Nation with its premier joint expeditionary force in readiness as a crisis deterrence and response capability precisely tailored to meet the challenges of the 21st century.

15. SUBJECT TERMS
Information operations; IO; combined arms; maneuver warfare

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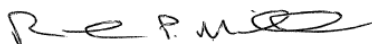## Information Operations

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Marine Corps Operating Concept for Information Operations

This revision of the 1998 *A Concept for Information Operations* incorporates knowledge and experience gained in Iraq and Afghanistan and focuses on a 21st century information environment of unprecedented complexity. The past decade has witnessed fundamental changes in the information environment making availability and access to information more prevalent than in the past. For this reason, the Marine Corps must develop and maintain the ability influence the content and flow of information to potential adversaries, as well as foreign civilian audiences in the area of operations.

Marines overcome uncertainty and adversity through the innovative application of combined arms. Information Operations is a natural extension and evolution of the Marine Corps' combined arms mind-set and maneuverist tradition of taking the initiative embodied within MCDP-1 *Warfighting*. Whether applied in shaping the operational environment to deter conflict or in enabling decisive maneuver, IO seeks integrate and synchronize information-related capabilities with maneuver to target decision-making. The targeting means is secondary to the deliberately induced lethal or non-lethal effects that produce operational advantages for the commander. Ultimately the focus is always upon creating exploitable operational conditions which lead to accomplishment of the unit's mission.

This concept is intended to promote discussion and to serve as the catalyst for innovative planning throughout the Marine Corps, but focused within the MAGTF. It will help us think through implications and combat development actions necessary to improve upon the capability to conduct combined arms across the breadth of missions the Marine Corps will be called upon to perform. We must pursue development of solutions that are not system-centric but focus upon enhancing decision making and innovated combined arms approaches within MAGTF operations today and in the future. Future advances in information related capabilities—in tandem with improvements in other warfighting areas—will be leveraged by our forward deployed commanders to enable the decisive actions that demonstrate the Marine Corps remains the nation's force in readiness.

R. P. MILLS
Lieutenant General
U.S. Marine Corps

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> *"It was one more of the many cases in history which show that battles are apt to be decided more by fancies than facts. The impression made on the commander's mind often counts more than any actual blow and its physical effect."*
>
> B. H. Liddell Hart on the Battle of Leyte Gulf and Japanese Admiral Kurita's performance

Introduction

The Marine Corps warfighting philosophy of maneuver warfare seeks to shatter the enemy's cohesion through a series of rapid, violent, and unexpected actions to create a turbulent and deteriorating situation with which he cannot cope.[1] The Marine Corps conducts Information Operations (IO) as the integration, coordination, and synchronization of all actions taken in the Information Environment (IE) to affect a target's[2] behavior in order to create an operational advantage for the commander.[3] As such, the Marine Air Ground Task Force (MAGTF) executes IO as an inherent element of all operations to enable and enhance the overall ability to conduct successful military actions.

The Department of Defense identifies IO as a traditional military activity utilized throughout the range of military operations (ROMO) and all phases of an operation.[4] IO is planned for and conducted in all five domains of land, air, maritime, space, and the electromagnetic spectrum including cyberspace. The use of information to one's advantage in warfare is not new; what is new are the "tools" in use now - and available in the future - to conduct IO. Therefore, the concern is once a military force becomes entrenched in ever more sophisticated tools, military strategic thinking and those timeless combat skills needed to win battles will be lost. Despite this potential pitfall, the Marine Corps will not ignore the impact of new technologies, and the continually changing global environment in which Marines will operate. The Marine Corps will seek to incorporate and exploit new technologies, capturing them within the context of Corps' overall maneuver warfare philosophy and expeditionary culture. In the Marine Corps, IO is not a warfighting function in its own right; it is an integrating function which facilitates the six warfighting functions of command and control (C2), fires, maneuver, logistics, intelligence, and force protection. This distinction between warfighting functions and integrating function is key to the Marine Corps' belief IO does not, and will not, replace any of the time-tested warfighting functions—it will enable each of them.

IO is not a discrete, stand alone capability but is the integrated, coordinated, and synchronized operational application of all ***information-related capabilities (IRCs)***[5], both organic and non-

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[1] Marine Corps Doctrinal Publication (MCDP) 1, Warfighting, 20 June 1997, p. 73.

[2] Target – an entity or object considered for possible engagement or other action. Joint Publication (JP) 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 8 Nov 2010 as amended through 15 Jan 2015.

[3] The Marine Corps' view of IO is consistent with the new joint IO definition contained in JP 1-02 dtd 15 Jan 2012: "*The integrated employment, during military operations, of information-related capabilities in concert with other lines of operation to influence, disrupt, corrupt, or usurp the decision-making of adversaries and potential adversaries while protecting our own.*"

[4] Secretary of Defense Memo, response to CCDR letter Subj: Request for Support of Funding and Authorities to Conduct Information Operations, Dec 6, 2010.

[5] The term "information-related capabilities" is utilized as a generalized descriptive term in Department of Defense policy (OSD Memo 12401-10) and the JP 1-02 definition for IO but is not currently defined as a stand-alone term. For the purposes of concept, information-related capability (IRC) is defined as "*a discrete capability, function, or activity*

organic, to affect decision making by adversaries and potential adversaries thereby creating an operational advantage. Integration is accomplished under the purview of the operations section, based upon commander's guidance, and supports achievement of the commander's end state. A number of discrete capabilities (e.g. – Public Affairs (PA), Cyberspace Operations, Combat Camera (ComCam), Space Operations, Military Information Support Operations (MISO), Special Technical Operations (STO)) and activities (e.g. – Operations Security (OPSEC), Military Deception (MILDEC)) exist as specialties with their own unique attributes. However, IO is not synonymous with individual discrete capabilities or activities, much like fire support is not synonymous with artillery or aviation. As with traditional supporting arms assets applied using a combined arms approach, the Marine Corps conducts IO with a focus on integrating IRCs with all other MAGTF capabilities to best support the commander's decision-making, subordinate actions, and mission accomplishment. More art than science, IO is focused on the human mind and seeks to influence behaviors to produce operational advantages.

Purpose

Marine Corps forces must be capable of operating effectively against a myriad of potential adversaries and perform multiple, diverse, and simultaneous tasks across the ROMO. Developments in IRCs, in conjunction with improvements in the other warfighting areas, will be leveraged by commanders to enable the decisive actions envisioned by MCDP-1 Warfighting. Success in the execution of IO is achieved through integration and synchronization of capabilities and actions, information-related or otherwise, which ultimately corrupt or, at a minimum, slow the adversary's decision making process. IO is conducted in the physical, informational, and the cognitive dimensions of the IE to influence a specific target's decision-making process and physical actions. As such, IO has the potential to influence the coherence of action and cohesion of relationships on the warfighting capabilities of enemy forces and social structures in an area of operation.

Description of the Military Problem

> *"We are forward-deployed and forward-engaged: shaping, training, deterring, and responding to all manner of crises and contingencies… A middleweight force, we are light enough to get there quickly, but heavy enough to carry the day upon arrival, and capable of operating independent of local infrastructure. We operate throughout the spectrum of threats—irregular, hybrid, conventional—or the shady areas where they overlap."[6]*
>
> General James F. Amos, USMC
> 35th Commandant of the Marine Corps

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that uses data, information, or electromagnetic spectrum to produce lethal or non-lethal effects in the physical or informational dimensions with an expressed intent to cause deliberate effects within the cognitive dimension of the information environment."

[6] 35th Commandant of the Marine Corps, Commandant's Planning Guidance, 2010, p. 5.

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The IE continues to experience dynamic changes as a result of a developing "globally connected" world, trends in technology, the emergence of non-state adversaries, and increasing U.S. involvement in humanitarian assistance (HA) and theater security cooperation (TSC) operations. The operational environment in which Marine forces deploy, respond to crisis, and fight is increasingly complex. As America's Force in Readiness, the Marine Corps must adapt to these dynamic changes, which differ from conflict to conflict and from theater to theater, and employ the full complement of capabilities and activities against multifaceted mission sets.

The most dangerous threat to the U.S. is state-on-state warfare featuring the destructive capabilities of major powers.[7] Marines will most likely confront hybrid threats in complex environments characterized by densely populated littorals. Regardless of the adversary faced, the ability to comprehend and effectively "maneuver" to gain advantage in the IE is paramount given the potential for an adversary to adapt and quickly exploit irregular approaches with modern lethal capabilities and advanced cyber technology.[8] To compound the problem, complex political, cultural, religious, and historical factors of the diverse populations within the environment are difficult to understand.[9]

> *"To meet the demands of the national interest in the future, increasingly irregular, security environment, the Marine Corps will engage forward to forge partnerships, prevent crises, promote diplomatic access, reassuring allies and friends of our commitment, build partner capacity, and facilitate the security and stability of our allies."[10]*
>
> Brigadier General Daniel J. O'Donohue, USMC
> Director, Capabilities Development Directorate, MCCDC

The U.S. seeks to shape the international environment and achieve regional stability through the use of national power, including diplomacy, information, economic cooperation, international assistance, security assistance, and arms control. Deployed MAGTFs provide a means to achieve regional stability, contain and deter adversaries, through forward presence and cooperative engagement with allies during military exercises, civil-military exchanges, and information programs. Forward presence and cooperative engagement, such as building partnership capacity and facilitating access to potentially denied areas, are elements of influence utilized for shaping the operational environment. Sea-based, forward presence provides additional opportunities, by potentially minimizing the political, economic, cultural, and social impacts sometimes associated with forward stationed U.S. forces.

Engagement conducted by forward deployed MAGTFs usually consists of short duration bilateral training exercises afloat and ashore but Marines may also support rotational, longer term security force assistance missions as an integral part of a Combatant Commanders' TSC plan. Marines and

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[7] Marine Corps Vision and Strategy 2025, pp. 12-13.
[8] Ibid. p. 19.
[9] Irregular Warfare: Countering Irregular Threats, Joint Operating Concept, 17 May 2010, p. 14.
[10] Testimony of BGen Daniel J. O'Donohue before the House Armed Services Committee Subcommittee on Emerging Threats and Capabilities, 3 November 2011.

coalition partners participating may perceive exercises as merely training and readiness based events but they are actually supporting combatant commander TSC plans. Relationship building efforts, such as security force assistance and security cooperation activities, are mainstream Marine Corps operations supporting geographic operational strategies and also serve as flexible deterrents to potential adversaries. Informed by an understanding of the national strategy, such exercises take on significance well beyond their training value. [11]

Operations will likely involve coordinated activities with the armed forces of other nations in a multinational effort, and future allies may have different capabilities, equipment, procedures, and values. Marines working within a coalition must carefully consider the implications of history, culture, and present actions taken by multinational force members as they relate to overall operational employment and effectiveness. The human dimension of coalition operations must be considered to effectively form and employ the force.[12]

MAGTF shaping operations are linked to U.S. strategic objectives and are consistent with on-going regional engagement activities conducted by the Geographic Combatant Command during crisis. During conflict, MAGTF shaping operations focus on setting the conditions necessary for operational and tactical success, while supporting National objectives and policies. MAGTF employment across the ROMO will occur in an inherently uncertain and chaotic environment shaped by continuous human interaction. Civilian populations, organizations, and leaders are contributing elements to uncertainty, and commanders must shape the operational environment within context of unpredictability. Shaping efforts helps commanders to simultaneously meet their own operational requirements and their moral and legal responsibilities to civilians.

Central Idea

> *"The ability to comprehend and effectively "maneuver" in the cognitive and cultural dimension of the modern operating environment will be paramount.*"[13]
>
> General James T. Conway, USMC
> 34th Commandant of the Marine Corps

Information Operations is a natural extension and evolution of the Marine Corps' combined arms mind-set and maneuverist tradition of taking the initiative in both the physical and cognitive dimensions. The Marine Corps recognizes the potential of IO as a critical combat multiplier through the incorporation of IO into an expanded operational planning mindset which supports both the Marine Corps' operational requirements as well as the joint force commander's needs. IO, whether applied in shaping the operational environment to deter conflict or in enabling decisive maneuver, must be recognized as an essential enabling activity that facilitates development of an operational advantage for the commander.

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[11] Marine Corps Operating Concepts, Third Edition, June 2010, p. 53.
[12] Marine Corps Strategy and Vision 2025, 2 Aug 2006, p.6.
[13] Marine Corps Service Campaign Plan for 2009-2015, 09 Dec 2009, p. 3.

Describing Information Operations

IO is the integration, coordination, and synchronization of information-related capabilities to deliberately affect the IE to achieve the commander's objectives. The IE is *the aggregate of individuals, organizations, and systems that collect, process, disseminate, or act on information.*[14] Individuals, organizations (including forces), and systems all exist as tangible elements in the physical dimension of the IE but conduct activities within the informational and cognitive dimensions of the IE. Figure 1 provides an illustration of the IE definition.
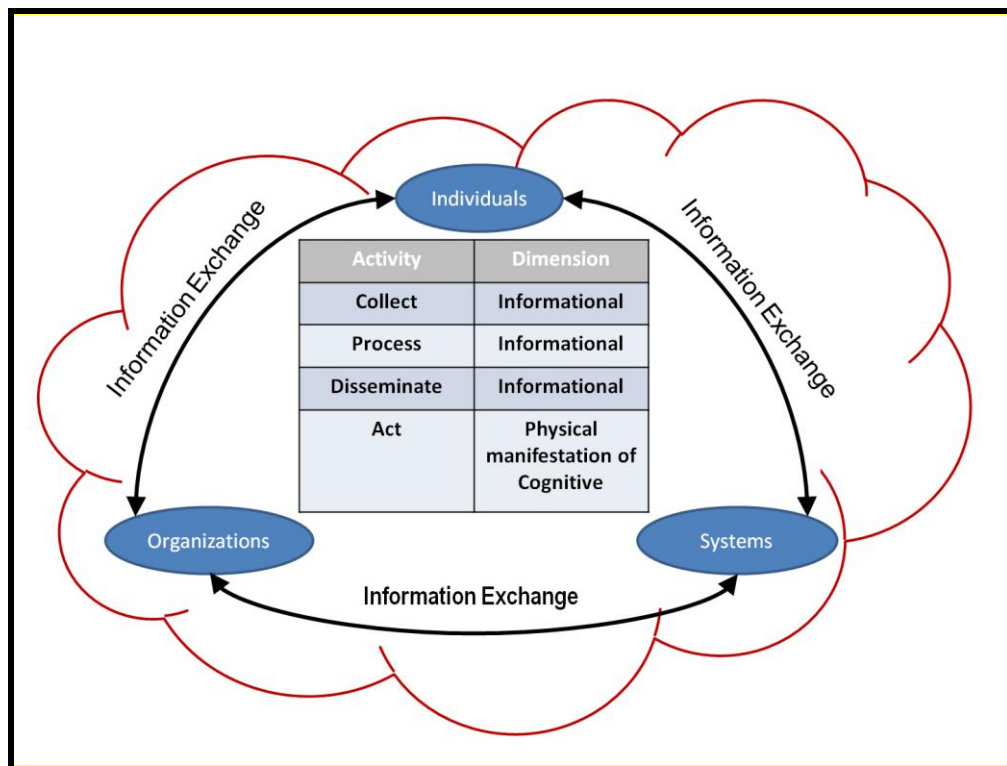

Figure 1. Information Environment

The IE is made up of three interrelated dimensions: physical, informational, and cognitive (Figure 2). The *physical dimension* is composed of systems, human beings (including decision makers, leaders, and military forces), and supporting infrastructure that enable individuals and organizations to conduct operations across air, land, maritime, space and cyberspace domains. The *informational dimension* is the place where information is collected, processed, stored, disseminated, displayed and protected – the key components are the content and flow of information. The *cognitive dimension* encompasses the mind of the decision maker or specific audience and is the dimension where people think, conceptualize, perceive, visualize and decide. In order to achieve and maintain initiative in both the physical and cognitive dimensions of the IE, traditional warfighting functions and IRCs must be employed in an integrated fashion. When employed together, they create holistic desired effects which produce operational conditions necessary to achieve the commander's end state.

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[14] Joint Publication 1-02: DOD Dictionary of Military and Associated Terms, as amended through 15 Jan 2012, p. 160.

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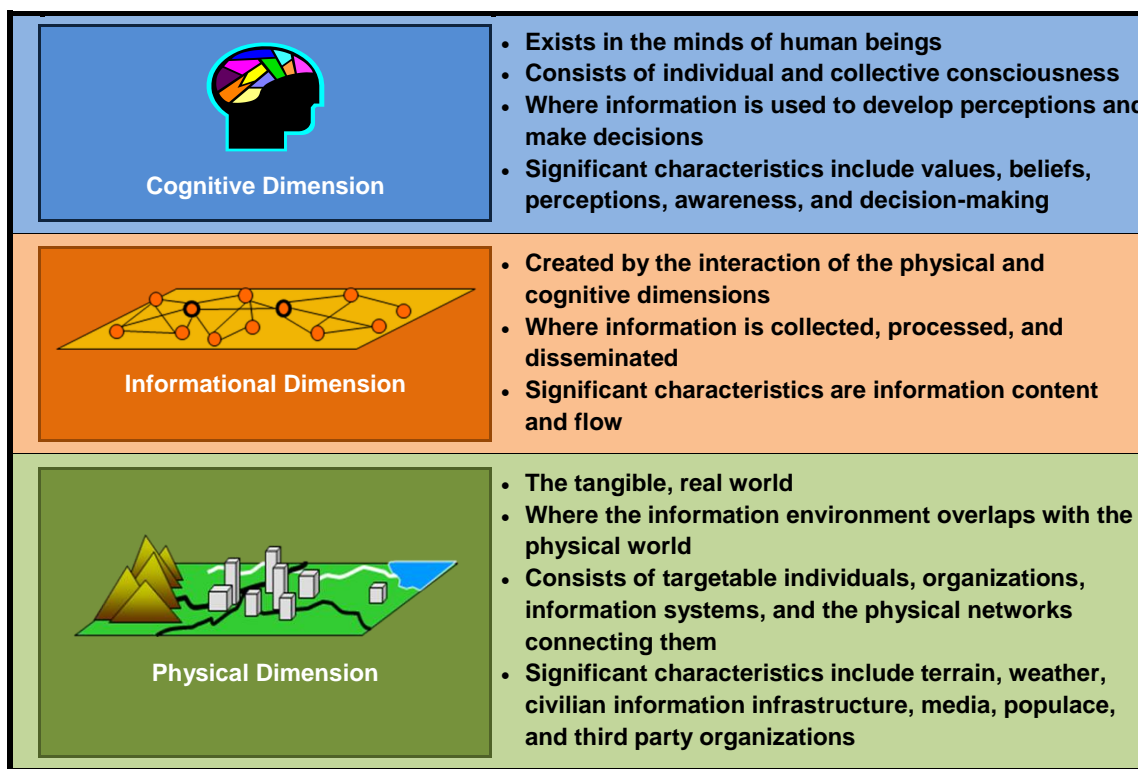|	
Cognitive Dimension	• **Exists in the minds of human beings** • **Consists of individual and collective consciousness** • **Where information is used to develop perceptions and make decisions** • **Significant characteristics include values, beliefs, perceptions, awareness, and decision-making**
Informational Dimension	• **Created by the interaction of the physical and cognitive dimensions** • **Where information is collected, processed, and disseminated** • **Significant characteristics are information content and flow**
Physical Dimension	• **The tangible, real world** • **Where the information environment overlaps with the physical world** • **Consists of targetable individuals, organizations, information systems, and the physical networks connecting them** • **Significant characteristics include terrain, weather, civilian information infrastructure, media, populace, and third party organizations**

Figure 2. Dimensions of the Information Environment

Conceptually, IO seeks to target decision-making across all dimensions of the IE and can be compared to traditional fire support coordination where a targeting methodology is used to employ a wide variety of assets against targets in a coordinated manner. The targeting means is secondary to the deliberately induced lethal or non-lethal effects which in aggregate produce operational advantages for the commander. Ultimately the focus is on creating exploitable operational conditions through the accumulation of integrated and synchronized effects in deep and close operations.

However unlike the application of supporting arms, there are four aspects of information which can be much more difficult than fires to apply precisely or effectively regardless of the means of delivery. One: information must compete for the attention of the intended target while fires have no such requirement. Two: although the target of fires may have few choices about the effects to which it is subjected, the target of an information operation can choose what signals to heed or ignore through the application of social and cultural filters. Three: although the effects of fires remain limited to targets within the designed radius of the ordnance, information effects can propagate well beyond the intended target and perhaps pick up strength, change, and create unintended consequences. Four: although the physical effects of fires are self-demonstrating, information must be interpreted by their target, which does so according to its own frame of reference. Hence what is ultimately received may not be intended by the sender, and what is received by one target may be different than the one

received by another.[15] Additionally effects within the IE, especially within the cognitive dimension, are often difficult to measure and assess.

Creating Operational Advantages

In order to help gain an operational advantage, IO should permeate all warfighting functions and emanate coherently from the operational plan and commander's intent to:

- Support the command decision-making process in achieving the unit's mission.
- Influence the adversary decision-making process.
- Inform and influence neutrals and potential adversaries.

IO is applicable at all levels of war and aimed at influencing a target's decision-making process. MAGTF actions, including the application of traditional combat power and non-kinetic capabilities,[16] shape the perceptions of a target, thereby impacting their decision making process and subsequent behaviors. The level of IO effort and emphasis adjusts according to mission requirements. The scope of IO is expansive and permeates strategic through tactical operations.[17]

As a forward-deployed element of national power, all MAGTFs are expected to facilitate, enable, or conduct IO at the operational and tactical levels to achieve or support strategic/operational objectives of the National Command Authority (NCA), Geographic Combatant Commanders (GCC), and Joint Force Commanders (JFC). A high degree of coordination between all involved military, government, and non-government agencies is required to ensure the actions of all elements are complementary and not counterproductive.

During shaping operations, IO can help deter adversaries from initiating actions detrimental to the interests of the United States or its allies. Carefully conceived, coordinated, and executed, IO can make an important contribution in defusing potential crises before they can escalate, thus reducing the period of confrontation and enhancing diplomatic, economic, military, and social activities. IO can forestall and possibly eliminate the need to employ physical force.

During combat operations, IO can help shape the operational environment and set the conditions for future combat actions to accomplish the MAGTF's objectives from a position of advantage. Once the crisis is contained, IO assists to restore peace and order, and allow for the successful termination of military operations. Future MAGTFs, as those in the past, will participate in the overall IO effort across the ROMO.   IO conducted by MAGTFs will primarily consist of shaping efforts, utilizing organic MAGTF assets as well as other non-organic activities and capabilities the MAGTF can leverage to better facilitate the application of combat power. Additionally, for a MAGTF designated to lead a Joint Task Force, understanding of and access to non-organic joint capabilities, activities, and functions will be especially critical to exercising JTF-level command and control.

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[15] Capstone Concept for Joint Operations Activity Concepts, Version 1.0, 8 November 2010, p. JCC-17.

[16] Synonymous with "non-kinetic means" which is defined by Joint Capability Area Lexicon of 16 Jan 2008 as "t*he ability to create effects that do not rely on explosives or physical momentum. (e.g., directed energy, computer viruses/hacking, chemical, and biological).*"

[17] Marine Corps Operating Concepts, Third Edition, June 2010, p. 44-60.

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The fundamental nature of war – that of persistent fog and friction – remains unchanged. War is inherently dynamic and uncertain. Uncertainty is an opportunity to be leveraged in creating operational advantages for the MAGTF. The MAGTF, through the conduct of IO, targets the decision-making process of adversaries thereby increasing the effects of uncertainty and friction. IO is centered on influencing human behavior and incorporates all aspects of human cognition. IO uses perceptions and cultural proclivities to discern and generate operational patterns. By exploiting these operational patterns, the conduct of IO focuses on influencing the cognitive dimension through the integration and application of combat power and IRCs thereby supporting the achievement of friendly objectives while adversely affecting adversarial situational awareness and decision-making abilities. As maneuverists, Marines select operational and tactical objectives for both cognitive and physical advantage. While physical efforts largely provide proportional outcomes based upon the laws of physics or force ratios, efforts focused upon the cognitive dimension can provide advantageous disproportional outcomes due to the difference between what an adversary perceives or believes to be true and what is actually true. This duality of purpose amid singular focus offers the potential for disproportionate results by creating cognitive vulnerabilities (e.g. cracking an adversary's will and cohesion) and exploiting them by deliberate actions (e.g. destroying his force) to gain a positional advantage.

Napoleon's maxim *"The moral is to the physical as three is to one"* appropriately conveys the force multiplier potential of IO. Were the outcomes of war readily determined by a computation of relative combat power or the correlation of physical forces, IO would only need to represent the information requirements necessary to produce a favorable force concentration at the decisive time and place. However, since war is inherently more art than science, Marines regard IO as a force multiplier enabling the commander to leverage operational art and integrate moral and cognitive elements, as well as fire and maneuver into the combined arms battle. IO enables commanders to effectively influence adversary decision-making in both the physical and cognitive dimensions. When fully integrated into the scheme of maneuver and informing the concept of fire support, IO enables commanders to seize the initiative from the enemy despite physical combat power favoring of the enemy. Artful employment of IO contributes to disproportionate tactical and operational advantage by enabling surprise and generating dilemmas which can dramatically subvert or progressively erode the enemy's moral will and physical capabilities.

Support the Command Decision-Making Process

As described in MCDP-6 *Command and Control*, the command decision process can be envisioned using Boyd's Observe-Orient-Decide-Act (OODA) Loop model. The simple observation, orientation, decision, and action loop reflects the iterative decision cycle existing at all levels of command responsibility. In the time compressed and competitive decision process of combat, success is heavily dependent upon leaders making decisions with greater fidelity than the enemy while acting in coherence with their commander's intent. Consequently, processes and procedures enabling command decisions must focus on supporting more decision makers and achieving advantage in terms of tempo, fidelity, and coherence of action. By achieving faster decision cycles and action in the face of risk and uncertainty, the commander generates the opportunity to gain and maintain the initiative and dictate the context of battle on more favorable terms.

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The MAGTF uses information in its internal decision-making process in two basic ways: 1) to help create situational awareness as the basis for decisions; and 2) to direct and coordinate actions in the execution of decisions.[18] The MAGTFs application of IO supports the command decision-making process by assessing the behavior the commander seeks to affect and providing courses of action supporting the achievment an objective or keeping the target from negatively impacting an objective.

Command is deciding what needs to be done and directing or influencing the conduct of others. Control takes the form of feedback—the continuous flow of information about the unfolding situation returning to the commander—which allows the commander to adjust and modify command action as needed.[19] Within the overall C2 process targeting identifies and prioritizes targets and matches the appropriate response to them. Information on the target's projected behavior and assessment of their actual behavior as a result of MAGTF actions are paramount in the targeting process. The effectiveness of IO tasks is assessed continuously to ensure efforts are supportive of the overall campaign plan.[20] The commanders must understand how their efforts to influence, as well as those of his adversary, are actually proceeding. A trusted feedback mechanism must exist to measure the effectiveness; otherwise, the commander may subsequently make critical decisions based upon erroneous assumptions.[21]

Historical Example: Operation OVERLORD

The contributions of ULTRA, the system that decoded the German Enigma's encryption code, as an Allied feedback system was critical in the European theater and specifically to Operation OVERLORD during World War II. ULTRA provided an almost unfettered channel into German communications and understanding of the adversary. Through its use, disposition of German forces, intent, and operational patterns were developed. In order to achieve operational surprise, a series of clandestine operations were conducted to portray Allied intentions to land forces at Pas de Calais. These operations included use of compromised German spies, false radio traffic, phantom headquarters, and dummy forces contributed to the deception. For Operation OVERLORD, ULTRA was utilized to confirm the Germans believed the Allied deception and considered any actions in Normandy as a diversion. ULTRA provided confirmation Germans had misplaced and intended to hold their reserves in place, which enabled General Eisenhower to move against Normandy confident the Germans would introduce reinforcements piecemeal.

The multitude of activities, from a variety of sources, contributed discrete effects aggregating into the German determination of a false operational pattern which was confirmed by ULTRA as a trusted feedback mechanism. The combination of deliberate shaping operations coupled with a credible feedback loop, generated the operational conditions necessary for the Allied scheme of maneuver to succeed without amphibious and airborne forces being defeated in detail near the beachheads.

Even as information systems enable and enhance warfighting capabilities, increasing dependence on the rapidly evolving technologies necessary to execute operations creates vulnerabilities for the MAGTF. The weaknesses are exacerbated when MAGTFs operate in austere environments, including off sea-based platforms or with limited host nation support, at the end of a tether possibly

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[18] Marine Corps Doctrinal Publication 6, Command and Control, 4 October 1996, p. 49.
[19] Ibid, p. 47.
[20] Major Combat Operations JOC v20, December 2006, p. 46.
[21] Ibid, p. 33.

originating in the continental United States.[22] The Marine Corps concept for Enhanced MAGTF Operations envisions data communications down to the platoon level, thereby extending system weaknesses to the furthest reaches of the tether.[23] Adversaries will attempt to exploit the criticality of the MAGTF commander's need for access to, and manipulation of, the IE.[24] IO enhances the ability of the MAGTFs to integrate the capabilities necessary to protect information and information systems, and mitigate vulnerabilities in the MAGTF decision-making process.

In the area of operations, the integration of all capabilities, both kinetic and non-kinetic, is essential to achieving coherent effects within the IE. The targeting means are secondary to achieving the desired targeting effect, especially since "targets" in IO terms will no longer reside solely in the physical dimension but include the perceptions and actions of civilians, key leaders, and military adversaries. It is critical targets, and the desired result in targeting them, be determined early in the planning process in order to determine the best course of action. Information can be used to simultaneously achieve operational objectives or effects, while tactically mitigating unnecessary loss of life, and strategically supporting national or coalition objectives.

During conflict, the MAGTF focuses on the operational environment's physical and informational aspects affecting decisive maneuver. Since the use of IO in shaping transcends the physical domain, MAGTFs must also consider the political, cultural, and moral aspects of the operational environment. As a crisis blends into conflict, the defining point at which operations change from peace support, to peace enforcement, to conflict, will become increasingly difficult to define. Operations must be approached holistically, with an understanding of the historical underpinnings and cultural aspects of the crisis or conflict; an understanding of how information can be utilized to inform and influence to achieve desired operational effects; and an understanding of their responsibilities to terminate conflict in a manner which fosters stability.

The MAGTF commander's intent and end state are paramount to successful IO, regardless of geographic location or specific mission. In order for the MAGTF to conduct effective IO, all MAGTF elements must be coordinated, integrated, and synchronized to produce discrete effects that aggregate to the generation of operational advantages. During conflict, a MAGTF conducting IO may rely upon discrete capabilities or functional processes such as electronic warfare, MILDEC, maneuver operations, space control operations, and the effects created through the physical destruction of targets to attack C2, intelligence, and other critical information-based processes which contribute to achieving the commander's intent and end state. The MAGTF may need to coordinate with national-level agencies and other service components for certain IRCs—to include cyberspace operations capabilities, MISO, space support, and STO. A thorough understanding of these specialized capabilities, their inherent authorities and approval processes, and the ability to access via appropriate communication means are critical to the MAGTF's ability to employ these non-organic IRCs in complex operating environments. When a MAGTF is designated to lead a Joint Task Force, these items become critical requirements to fully exercise command and control over joint assets.[25]

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[22] Seabasing for the Range of Military Operations, 26 March 2009, p. 11.
[23] Marine Corps Operating Concepts, Third Edition, June 2010, p. 46.
[24] Marine Corps Strategy and Vision 2025, 2 Aug 2006, p.19.
[25] Marine Corps Strategy and Vision 2025, 2 Aug 2006, p. 19.

Marine Corps Operating Concept for Information Operations

The ability of the MAGTF to produce synergistic effects is the result of detailed, integrated planning. Successful IO requires the identification of IRCs most likely to achieve effects supporting operations and is not simply the independent employment of discrete capabilities in isolation. IO planning must be continuous and ingrained within the framework of the Marine Corps Planning Process (deliberate and crisis action). IO will be conducted in alignment with the tenets of top-down planning, the single-battle concept, and integrated planning. This ensures unity of effort, and will result in the proper orchestration of IO within the context of the six warfighting functions, which serve as the building blocks of integrated planning.[26]

By thoroughly planning and integrating organic warfighting capabilities with those available from non-organic sources, the MAGTF Commander is fully supported and better positioned to achieve the ultimate goal of influence – winning the battle of wills without the use of force.

Influence the Adversary Decision-Making Process

> *"Positions are seldom lost because they have been destroyed, but almost invariably because the leader has decided in his own mind that the position cannot be held."*[27]
>
> A. A. Vandegrift

MAGTFs will conduct IO primarily at the operational and tactical levels to influence the adversary's behavior in order to create operational advantage. The principal focus of IO is the adversary decision-making process. By targeting the human element, the adversary's situational awareness and ability to conduct effective operations is affected. IO can confuse or reinforce a perception, leaving the adversary decision-maker unable to make clear, accurate, timely, and well-informed decisions.

Actions will be oriented against adversary decision makers and other conduits to disrupt or deny the adversary's ability to use its own decision-making processes, information, and information systems to achieve operational objectives. Integrated targeting to achieve the desired operational effects will combine organic and non-organic kinetic and non-kinetic capabilities to shape the cognitive, informational, and physical dimensions of the operational environment's IE.[28]

Historical Example: The Battle of Midway

Despite the carnage caused by the Japanese attack on Pearl Harbor on December 7, 1941, none of America's aircraft carriers were in port on that fateful day. To finish what was not accomplished at Pearl Harbor, Japanese Admiral Yamamoto's plan was to attack Midway Island, draw out America's carriers, and destroy them in a decisive battle. After accomplishing the destruction of the U.S. Navy's fleet, Yamamoto hoped to attack and occupy Hawaii and, thus, convince the United States to agree to a peace on Japanese terms.

Unfortunately for the Japanese, code-breakers within the U.S. Navy's Combat Intelligence Unit at Pearl Harbor were able to decrypt Japanese operational message traffic. During World War II, the Japanese referred to objectives in messages using a two or three-letter designator. The code-breakers were able to

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[26] Tactical Perception. 17 April 2007, p. 4; Secretary of Defense Memo 12401-10.
[27] Marine Corps Doctrinal Publication 1, Warfighting, 20 June 1997, p. 1.
[28] Marine Corps Operating Concepts, Third Edition, June 2010, p. 116.

determine a large scale operation against "AF" was planned for early June, 1942. While they were fairly certain "AF" referred to Midway, officials in Washington were not absolutely convinced. To resolve the impasse, an unencrypted message was sent from Midway indicating its saltwater evaporator had broken down and they were running short of fresh water. Shortly thereafter, a Japanese message was intercepted and decoded which stated "AF" was short of drinking water. Using this knowledge, American Admiral Nimitz established an ambush of the Japanese invasion force and managed to sink all four of the carriers, thereby turning the tide of the war in the Pacific.

While there were months and years of brutal fighting waiting across the Pacific, the Battle of Midway provides an example of an information action creating an operational advantage that helped lead to ultimate victory in World War II.

A close and continuous relationship with intelligence support is essential. As a force enhancer, IO involves the integration of varied capabilities and "synchronizing" the diverse activities into a coherent, seamless plan to achieve specific objectives. Human decision-making processes are the ultimate target. Planning guidance should be clearly established, support overall national and military objectives, consider the influence of other regional informational activities taking place outside the MAGTF, and include identifiable measures of effectiveness.

The planning of IO and employment of IRCs require broad-based intelligence support. Intelligence preparation of the battlespace (IPB) is a continuous process used to develop detailed knowledge of the operational area's adversaries and the IE. Intelligence support builds upon traditional IPB and requires the following:

- In the cognitive dimension, an understanding of the potential adversary's political, social, and cultural influences, his decision-making process, his motivating factors, his leadership style, and the political/military considerations constraining his range of action.
- In the physical dimension, an understanding of the human, technical, and infrastructure elements supporting the content and flow of information.
- In the informational dimension, a knowledge of information content and how information flows to and from an adversary and others.

Consequently, the role of intelligence in IO is continuous. Changes in attitudes, actions, operating patterns, and adversary information systems must be detected, analyzed, and reported to ensure IO continues to achieve the desired operational effect. Assessment of ongoing activities is a crucial and extremely challenging intelligence responsibility, as targets must be monitored to determine the effectiveness of overall IO efforts. To achieve complete synthesis, IO requirements must be incorporated into the MAGTF's intelligence, assessment, and targeting cycles. Normally IO objectives are identified in the cognitive and physical dimensions; decisions are reflected in observable behaviors. The difficulty is the linkage of a single activity or the cumulative effect of a series of activities with observable changes/indicators in behavior. In many cases, the impact of executed IO tasks will be difficult to measure, and must be carefully crafted in planning to identify causal indications of success or failure for inclusion in the collection plan and assessment analysis.

Historical Example: Desert Storm

In August, 1990, Iraq invaded Kuwait and declared it to be the 19th province of Iraq. A coalition of 34 nations, led by the United States, prepared to evict the Iraqi army from Kuwait. Two Marine Expeditionary Brigades were afloat off of the coast of Kuwait conducting exercises, demonstrations, feints, and raids to convince the Iraqis an amphibious assault was imminent. operations caused the Iraqis to position nearly seven Iraqi divisions in the coastal area to establish beach defenses and a theater reserve to counter the threat.

Additionally, American and coalition forces built up along the Kuwait-Saudi Arabian border and gave every sign of assaulting directly from the south, specifically up the Wadi Al Batin, an area near the point where the borders of Iraqi, Kuwait, and Saudi Arabia meet. Once the air war began on January 17, 1991 and neutralized most of the Iraqi intelligence gathering capability, the U.S. Army XVIII Corps began moving west into the desert. On February 13, 1991, the Army's VII Corps moved west. Each left behind small units to replicate radio traffic to maintain the deception.

As a result, Iraqi forces were oriented to counter perceived U.S. assaults from the south and from the sea. The misalignment of Iraqi forces enabled the "left hook" enveloping maneuver to attack through Iraqi corps and division rear areas, reducing the Iraqi Army, as General Norman Schwarzkopf put it in his after action briefing, "from the fourth-largest army in the world to the second-largest army in Iraq in 100 hours."

At the more tactical level within the Marine Corps sector, six Iraqi Divisions with over 1200 artillery pieces faced 1st Marine Division. Recognizing physical destruction of the artillery threat was not feasible, 1st Marine Division focused upon defeating the minds of the Iraqi artillerymen. Through a series of combined arms raids, utilizing organic artillery, counter-battery RADAR, Unmanned Aerial Vehicles, and Marine Corps aviation assets, the Iraqi artillery exposed themselves during counter fire missions and were greeted with Marine aviation delivered ordnance. Within three weeks of beginning combined arms raids, Iraqi artillerymen were abandoning their positions, knowing employment of their artillery would result in their destruction by aviation delivered fires. Through the application of combined arms raids with other actions, the exploitable operational conditions were set to conduct northward movement and breeches of the minefields, relatively unopposed from the threat of Iraqi artillery.[29]

Since IO will often not produce the same directly observable effects utilized for traditional battle damage assessment, IRC executions will challenge the intelligence system to develop other measures and "feedback loops" to gauge the effectiveness of these activities.

Inform and Influence Neutrals and Potential Adversaries

Future conflict will be dominated by wars fought among the people, where the objective is not to crush an opponent's war-making ability but to influence a population's ideas.[30] Overall success will not solely be determined by the application of conventional military power but will also be a function of favorably shaping behaviors of adversaries and neutral organizations.[31] Neutrals are non-U.S. personnel and can behave in a manner ranging from aiding the adversary to aiding friendly forces. MAGTFs must understand their actions and activities have the potential to influence neutrals to

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[29] Major General J.M. Myatt, USMC. Letter to Commission on Roles and Missions of the Armed Forces, subject: "Close Air Support and Fire Support in DESERT SHIELD and DESERT STORM," 8 December 1994, p. 1.
[30] Marine Corps Operating Concepts, Third Edition, June 2010, p. 110.
[31] Remarks by Secretary of Defense Robert M. Gates, Manhattan, Kansas, Nov 26, 2007.

behave in a manner that creates conditions, both favorable and negative, to attaining the commander's objectives.

Historical Example: Operation al-Fajr

The Second Battle of Fallujah (Operation al-Fajr) was a Marine Corps-led offensive in November and December 2004 against a terrorist stronghold in the city of Fallujah. The synchronized employment of IRCs played a significant role in the shaping operations and Fallujah became a textbook case for the coordination and use of IO in support of an operation. The buildup of forces north of Fallujah was concealed by focusing the enemy's attention on the south through constant and aggressive patrolling and executing feints from the south while simultaneously executing precision strikes in the southern parts of the city. Through the coordinated employment of various communication mediums and methods, noncombatants were encouraged to leave the city while terrorists remained in place. This effort might have been the most important aspect of the operation, as some estimates showed 90 percent of the noncombatants departed the city. With the noncombatants out of the city, the incidence of civilian casualties were reduced which, in turn, provided fewer opportunities to spur for calls for the withdrawal of Marine forces. Additionally, the insurgents were less well hidden and sheltered by innocent civilians, so precision targeting could take greater effect in the city. And finally, the shaping operations drew out enemy forces so they could be positively identified and attacked.

Operation al-Fajr denied the terrorists a safe haven. It also revealed more about the barbarism of some elements of the insurgency which would ultimately lead the population of al-Anbar province to turn against the insurgency.

Neutrals will be motivated and driven by social, cultural, ethnic, religious, economic, and political factors. Interests of different groups will overlap and conflict, further complicating the operating environment. Emerging technologies empower individuals, allowing anyone to create content, share information, and push micro-agendas to sympathetic audiences at little cost which also provides adversaries the opportunity to asymmetrically attack MAGTF actions and build support for their causes.[32] The ability to influence behavior requires a thorough understanding of the human, social, behavioral, and cultural aspects of the target in order to produce the desired effect by communicating in the right context and using the appropriate means.[33] Influencing behavior and actions is further complicated by the fact the target population may not be homogeneous in their thinking or motivation, creating information sub-environments, which create, in effect, multiple target populations. Therefore, all actions related to achieving the commander's objectives must be planned, coordinated, and implemented with due consideration for how they will be perceived by the multiple target populations.[34] Actions must match words to convey a consistent intent.[35]

The U.S. maintains a wide range of humanitarian and global security responsibilities which will continue well into the future. Marines can expect to be involved with various peace operations. These may include being tasked to provide humanitarian assistance after a disaster, provide peace support for nations seeking a secure environment to peacefully develop, provide peace enforcement to separate warring factions, and project combat power when a crisis requires the threat and/or use of

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[32] Marine Corps Operating Concepts, Third Edition, June 2010, p. 126.
[33] Marine Corps Doctrinal Publication 1-0, Operations, pp. 3-19.
[34] Marine Corps Operating Concepts, Third Edition, June 2010, p. 126.
[35] Capstone Concept for Joint Operations Activity Concepts, v1.0, 8 November 2010, p. JSC-23.

force. As a crisis develops, Marines may find themselves executing more than one mission at a time, or multiple missions in rapid sequence. They may be asked to provide relief to civilians while keeping belligerents separated, defending U.S. interests, and enforcing international law. To project power and influence, Marine forces are employed for presence, engagement, and response. Each of employments have a strong informational component. The on-scene presence of the forward-deployed MAGTFs - and their proximity and access to potential crisis areas - will establish them as vital operational cornerstones for follow-on forces acting as part of a national and theater crisis response.[36]

In a globally connected, uncertain environment, the MAGTF's ability to maneuver in the IE and affect the behavior and perceptions of relevant decision makers and populations are critical elements of mission success. A MAGTF communicates its intent through the use of culturally attuned methods and means as well as non-verbally by actions which are key components impacting perceptions and behaviors within the area of operations. Operations conducted with the knowledge of a population's socio-cultural values enable the MAGTF to accurately convey its intent and create effective impacts upon neutrals' perceptions.

Marines recognize they will always be watched by the world. Marine Corps efforts will be observed, commented upon, and selectively portrayed to, and by, the world. The perceptions created by MAGTF operations may result in changes to political realities which may affect the assigned mission. Information is a powerful component of the operating environment. Not only do Marine Corps actions matter, but the perceptions those actions create may matter more. Small, apparently local actions may have strategic consequences. For example, an "event" at a single checkpoint can change the relationship between the MAGTF, local residents, allied partners, and nongovernmental organizations and—depending upon how the event is perceived—can dramatically sway public opinion. All Marines must be aware of their tactical responsibilities and potential strategic consequences.[37]

Implications for Capability Development

> *"We will better educate and train our Marines to succeed in distributed operations and increasingly complex environments."[38]*
>
> General James F. Amos, USMC
> 35th Commandant of the Marine Corps

The Marine Corps is tasked to provide Marine forces for service with the Combatant Commanders. These forces must be manned, trained, and equipped with the means to directly or indirectly affect the behavior of hostile actors, neutral parties/organizations, and potential or realized adversaries throughout the full spectrum of conflict. Marine Forces Component Commands and subordinate MAGTFs must be capable of conducting IO as a natural extension of combined arms operations and

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[36] Amphibious Operations in the 21st Century, 18 March 2009, pp. 9-17; Marine Corps Strategy and Vision 2025, 2 Aug 2006, p. 9.
[37] Tactical Perception, 17 April 2007, pp. 4-5.
[38] 35th Commandant of the Marine Corps, Commandant's Planning Guidance, 2010, p. 8.

be postured to support and conduct actions necessary to influence adversary information, information system operations, and decision-making. Without IO capable Marine Forces, the commander's requirement to secure, shape, and ultimately condition the operational environment can never be fully met.

A deliberate investment to expand the understanding and knowledge of IO and IRCs across the Marine Corps ensures the MAGTF is prepared to employ an arsenal of non-kinetic capabilities in coordination with conventional military means to generate exploitable operational conditions within complex operating environments. Doctrine, training, and leader development/education are the central areas for enhancement but are also closely aligned to organization and personnel categories. To meet the requirements of this concept, the Marine Corps must consider the following improvements:

Doctrine

- Review and revise planning doctrine to describe a dynamic and iterative process which incorporates all available assets into achieving physical and cognitive objectives across all MAGTF lines of effort and operation.

- Develop stand-alone assessment doctrine to address the comprehensive environmental assessment of physical and cognitive effects and conditions across the operational environment.

Organization

- Conduct review of table of organizations, specifically within MAGTF Command Elements (CE) and Marine Component Commands, to ensure organic IO and specific subject matter expertise[39] (e.g. STO, ComCam, EW, PA, MISO, MILDEC, cyberspace operations, space operations) billets required for full incorporation within planning, targeting, and assessment processes are present in appropriate staff section areas.

- Conduct a thorough review of existing IO and specific subject matter expertise billets to ensure appropriate grades and security clearance requirements are identified.

- Align limited 8834 Additional Military Occupational Specialty (AMOS) structure to MAGTF CE and supporting establishment (i.e., combat development, training, education) tables of organizations to optimize utilization of Marines in critical operational and institutional areas.

Training

- Develop institutionally funded formal training venues, based upon Training and Readiness (T&R) standards for AMOSs, to create a sustainable capacity for current and future IO and specific subject matter expertise personnel requirements.

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[39] "Specific subject matter expertise" describes Marines who provide proficiency in the application of a distinct function or capability that contributes to a Marine Force's IO effort. In some cases, proficiency is contained within a specific MOS or may require specialized formal training. The examples given are not all inclusive but representative of functions and capabilities requiring permanent organic presence for optimal planning and execution in support of MAGTF operations.

- Leverage and fund existing AMOS producing formal training venues of Sister Services and Joint Force to provide IO and specific subject matter expertise.

- Develop automated ability to track completion of IO and specific subject matter expertise formal training courses.

- Develop comprehensive pre-deployment MAGTF training for decision makers and designated planners concerning combatant command specific programs, procedures, and persistent shaping activities within geographic area.

- Develop evaluated, collective training specific to the combined arms application of non-kinetic capabilities, especially those available through combatant commands for employment within a MAGTF area of operation.

- Revise applicable T&R to included specific responsibilities concerning the integration, coordination, and employment of IRCs required to conduct IO.

- Develop MAGTF CE Training and Readiness Manual to identify inherent Command Element responsibilities, as a MAGTF and as a JTF HQ, concerning the integration, coordination, and employment of IRCs required to conduct IO.

Materiel

- Obtain existing standardized Joint Force systems to enable full MAGTF C2 linkage, while afloat and ashore, into available Joint Force assets and enables a MAGTF to operate as a Joint Task Force headquarters.

Leader Development and Education

- Develop enduring, standardized IO modules, inclusive of IRCs, within all professional military education venues to enable broader Service wide understanding of non-kinetic and kinetic capabilities (organic and non-organic), authorities, and applicability across all MAGTF operations.

- Consistent with established Service priorities, fully source annual Special Education Program requirements for AMOS 8834 to provide gaining organizations with organic subject matter expertise contained within the AMOS 8834 skill set.

Personnel

- Develop and institute process to ensure assignment of fully trained and qualified Marines for non-Primary Military Occupational Specialty (PMOS) IO and subject matter area billets in order to ensure gaining commands have organic planning and employment capability of IRCs required to conduct IO.

- Develop institutional process for progressive utilization in multiple assignments for non-PMOS IO and subject matter expertise areas to capitalize upon limited Marine Corps capacity.

Conclusion

The use of information in warfare is not new as commanders since Sun Tzu have long recognized the importance of information in influencing the outcome of battle. Today, the information revolution continues, having been created through the dynamic confluence of knowledge, communications systems, technology, and a changing world environment.

Changes in the operational environment and advances in technology will not supplant timeless military thought. At its most fundamental level, war will remain a classic struggle between opposing wills, but will be increasingly complex due to the nature of the future world environment and the wealth of information available to support it. As the Marine Corps strives to consider the informational, political, cultural, and moral factors shaping future conflict, it still recognizes the fog and friction of warfare will never be completely eliminated. IO will undoubtedly adapt as new technologies arise, but the Marine Corps shall remain mindful the main objective is operational success, not the attainment of information or technology for its own sake.

> **Information Operations**
>
> - Integrated, combined arms approach applying information-related capabilities with the current warfighting functions
>
> - Support achieving operational advantage that supports Commander's end state
>
> - Applicable across the range of military operations, at all levels of war, and throughout all phases of operations

Looking to the future, the Marine Corps will continue to build upon its expeditionary heritage and combined arms philosophy. IO enhances operational maneuver, applying expanded knowledge and understanding of the environment and its cultures, and providing the means to extend the influence of the MAGTF well beyond the range of its weapons systems. Used as a natural extension of combined arms, IO will create critical opportunities which will allow future Marine Forces to project combat power more advantageously in support of MAGTF commander, JFC, and GCC objectives. Most importantly, IO will serve as a key complement to the traditional capabilities of the MAGTF, thereby enabling the Marine Corps to continue providing the Nation with its premier joint expeditionary force in readiness as a crisis deterrence and response capability precisely tailored to meet the challenges of the 21st century.